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ABSTRACT

Classroom behavior has been shown to be, in some cases, more important than measured ability for predicting young children's academic outcomes. This study examined the relationship between kindergarten children's work-related classroom behaviors and their kindergarten and first-grade achievement. A battery of achievement tests (receptive vocabulary, general knowledge, reading recognition, and mathematics) was administered to 267 children in the fall and spring of kindergarten and in the spring of first grade. In the fall of the kindergarten year, teachers provided information about work-related classroom behaviors of these children (for example, ability to sit quietly, ability to follow directions independently). Work-related classroom behaviors in the fall of kindergarten consistently influenced reading recognition from fall of kindergarten through spring of first grade, after controlling for IQ, mother's education, home literacy environment, entrance age, preschool experience, race, and gender. Less consistent, but significant, effects were found for general knowledge (fall of kindergarten and spring of first grade) and for mathematics (spring of kindergarten and spring of first grade). The results suggested that children who begin school with a repertoire of behaviors that are appropriate to the classroom, above and beyond other important factors such as IQ and mother's education, may be more "ready" to succeed in those school subjects receiving more emphasis in the early years. (Author/EV)

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The Role of Children's Social Skills in Achievement at Kindergarten Entry and Beyond

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Abstract

The relationship between kindergarten children's work-related classroom behaviors and their kindergarten and first grade achievement was examined. A battery of achievement tests (receptive vocabulary, general knowledge, reading recognition, and mathematics) was administered to 267 children in the fall and spring of kindergarten and in the spring of first grade. Teachers provided information about work-related classroom behaviors (e.g., ability to sit quietly, ability to independently follow directions) of these children during the fall of kindergarten. Work-related classroom behaviors in the fall of kindergarten consistently influenced reading recognition from fall of kindergarten through spring of first grade, after controlling for IQ, mother's education, home literacy environment, entrance age, preschool experience, race and gender. Less consistent, but significant, effects were found for general knowledge (fall of kindergarten and spring of first grade) and for mathematics (spring of kindergarten and spring of first grade). The results suggest that children who begin school with a repertoire of behaviors that are appropriate to the classroom (such as the ability to sit quietly during lessons and to independently follow instructions), above and beyond other important factors like IQ and mother's education, may be more "ready" to succeed in those school subjects receiving more emphasis in the early years.

Children begin kindergarten with vastly different levels of vocabulary, reading recognition, general knowledge and mathematics skills, and these differences are maintained or magnified over the early school years (Morrison, Griffith, Williamson, and Hardway, 1995). These initial differences relate to a variety of factors including IQ, mother's education, and home literacy environment. Behavioral factors also relate to children's achievement. For example, research on slightly older children links aspects of children's classroom behavior to both the level of school-related skills and to the development of those skills over time. Classroom behavior has been shown to be, in some cases, more important than measured ability for predicting young children's academic outcomes (Alexander, Entwisle, and Dauber, 1993). The present study examines children's work-related classroom behavior at the beginning of kindergarten, before they have had much experience in formal schooling, and addresses the following questions: (i) Do initial work-related classroom behaviors predict achievement in the fall of kindergarten, perhaps contributing to the large differences seen in achievement at school entry?; and, (ii) What are the lasting effects of these early classroom behaviors on achievement later in kindergarten and in first grade?

Method

Two-hundred sixty seven children (46% girls; 62% White and 38% African-American) were individually administered a battery of achievement tests [receptive vocabulary, PPVT-R, (Dunn & Dunn, 1981); and general knowledge, reading recognition, and mathematics, PIAT-R, (Markwardt, 1989)] as well as an abbreviated battery of the Stanford-Binet Intelligence

Scale (Thorndike, Hagen, & Sattler, 1986) in the fall and spring of kindergarten and in the spring of first grade. Teachers completed the Cooper-Farran Behavioral Rating Scale, CFBRS, (Cooper & Farran, 1991) for each child during the fall of kindergarten. CFBRS measures both work-related classroom behavior (see Figure 1) and interpersonal behavior.[1] Each child's work-related skills score is the average rating on all 16 items (with a possible range from 1 to 7) composing the scale (see Cooper & Farran, 1991, for scoring information). Finally, in the fall of their child's kindergarten year, parents provided information about their own educational background, their child's preschool attendance, and their "home literacy environment" (see Griffin & Morrison, 1997).

Results and Discussion

Children began school with varying levels of work-related classroom behaviors. On average there was a tendency toward more positive than negative behaviors (mean=5.3, sd=1.2, range=1.4 to 7.0).

Work-related behaviors in the fall of kindergarten significantly predicted performance on measures of reading recognition and general knowledge in the fall of kindergarten. However, work-related behaviors were not significantly related to vocabulary or mathematics after removing effects of important background variables (see Table 1).

Entering kindergarten work-related behaviors had long-term effects extending at least through the end of first grade. The effects of fall kindergarten work-related skills on spring kindergarten reading achievement are of a similar magnitude as in the fall (see Table 2).

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[1] In this study only work-related skills were examined.

Moreover, since the fall reading score is included in the analysis, the effects of fall work-related skills are on gains in reading over the kindergarten year. Work-related behaviors are also marginally significant for mathematics performance in the spring of kindergarten. In the spring of first grade, reading is still significantly related to initial work-related behaviors, and the magnitude of the effect is slightly larger than in the previous grade (see Table 3). Here, too, we begin to see evidence of an effect on both mathematics and general knowledge. That the strongest and most consistent effects are on reading may relate to the emphasis on reading in early elementary school. Reading is emphasized in the early years and requires concentrated effort on the part of young learners, making strong work-related skills particularly important. Mathematics, although important, does not typically get the same degree of coverage as reading and so is not as influenced by classroom behavior as reading; nonetheless it does require concentrated effort and so will be somewhat influenced by strong work-related skills. General knowledge is less bound to specific curricula so may be less influenced by how a child behaves in the classroom than by factors outside of the classroom (such as enrichment experiences) or intrinsic to the child (such as IQ).

Conclusions

Initial classroom behavior influences children's earliest achievement in reading and also has lasting effects on gains in reading over the kindergarten and first grade years. Although weaker and less consistent, we saw that work-related classroom behaviors may also play a role in the development of mathematics and general knowledge skills. Children who begin school with a repertoire of behaviors that are appropriate to the classroom (such as the ability to sit quietly during lessons and to independently follow instructions), above and beyond other

important factors like IQ and mother's education, may be more "ready" to succeed in those school subjects receiving more emphasis in the early years.

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Figure 1

Cooper-Farran Behavioral Rating Scale: Work-Related Skills

1. PERFORMANCE ON DAILY NONACADEMIC TASKS

1	2	3	4	5	6	7
cheerfully does own chores, then takes on extra duties		independently attends to routines		will do chores, but only with prodding		often refuses to perform daily chores

2. RELEVANT PARTICIPATION IN GROUP DISCUSSIONS

1	2	3	4	5	6	7
often contributes original ideas; relevant and responsive to others comments and interests		makes an occasional relevant comment; attentive		inattentive to others; quiet but uninvolved		makes irrelevant remarks; interrupts the flow

3. BEHAVIOR DURING DESIGNATED WORK TIME

1	2	3	4	5	6	7
finishes all assigned tasks		takes occasional breaks from work, and returns promptly		requires periodic reminders or directives in order to stay on task		needs constant supervision to redirect attention from play to work

4. PARTICIPATION IN OUTDOOR GAMES

1	2	3	4	5	6	7
superior player; takes leadership role		plays most games adequately		is a sluggish and unwilling participant		disrupts others' play; hoards equipment; cheats at games

5. EXPRESSION OF FEELINGS AND IDEAS DURING DISCUSSIONS

1	2	3	4	5	6	7
very open and expressive; reveals personal insights		expresses self adequately; shares feelings and ideas		makes minimal statements when encouraged		closed; defies efforts to elicit self-expression

6. RESPONSE TO OTHERS' MISTAKES OR MISFORTUNE

1	2	3	4	5	6	7
actively expresses sympathetic desire to help others		takes interest in others' problems; can be persuaded to help		appears to ignore others' problems; does not help or show sympathy		openly ridicules others; adds insult to injury

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Figure 1, continued

7. ACTIVITY LEVEL IN GROUP ACTIVITIES

1	2	3	4	5	6	7
fidgety; extremely active; sits for 5 minutes or less		can sit for 5-10 minutes but only for certain interesting activities (films, etc.)		sits 10-20 minutes for most types of lessons or activities		sits quietly for 30 minutes or more

8. WORK AND PLAY WITH PEERS

1	2	3	4	5	6	7
is comfortable playing and working with most children, both familiar and unfamiliar		plays or works well with a consistent group of children		shows a preference for one other child; prefers to be with that child or alone		works or plays alone; rejects other's efforts to do things together

9. LISTENING TO TEACHER GIVING INSTRUCTIONS TO GROUP

1	2	3	4	5	6	7
seems to ignore the teacher; is very distracted and distracting		can maintain attending behavior with frequent reminders from the teacher		occasionally inattentive; attention is easily regained by a cue from teacher		attends to the teacher without reminders

10. COMPLIANCE WITH TEACHER'S INSTRUCTIONS RELATING TO WORK

1	2	3	4	5	6	7
independently follows instructions		performs tasks as instructed with minimal supervision		demands that instructions be repeated; or does the right task in the wrong way		seems to disregard instructions; does the wrong task or nothing at all

11. SOCIAL INTERACTION

1	2	3	4	5	6	7
appears withdrawn, totally closed to the social environment		can be coaxed to interact at a minimal level with certain children; slow to warm up		socializes adequately with a variety of children		initiates friendly social interactions

12. COMPLETION OF GAMES AND ACTIVITIES

1	2	3	4	5	6	7
finishes any activity that is begun		generally persistent; rarely quits		loses interest in group games and activities before a logical conclusion is reached		abruptly disengages from cooperative activity to begin something else

13. INDEPENDENT WORK

1	2	3	4	5	6	7
works independently without supervision		works alone with minimal supervision		disorganized; tries to work but requires much assistance or prompting		lacking in self-motivation; teacher prompting has only slight impact on work habits

14. MEMORY FOR INSTRUCTIONS

1	2	3	4	5	6	7
seems to quickly forget instructions relating to work; needs frequent reminders		retains instructions for up to an hour, then needs them repeated		can recall detailed series of instructions for several hours		remembers all instructions, regardless of time interval

15. ORGANIZATION OF WORK PRODUCTS

1	2	3	4	5	6	7
totally disorganized; work is sloppy; often misplaced		slightly disorganized; occasionally produces messy work		usually organized; work is generally neat		meticulous; produces neat work consistently, rarely loses material

16. FUNCTIONING WITHIN DESIGNATED TIME PERIODS

1	2	3	4	5	6	7
never concludes activities at designated time; late starting next activity		often slightly out of synch with group as they end and begin activity periods		concludes most activities on time; usually ready to start next activity		is synchronous with beginnings and endings of all activities

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Table 1

Effect of Work-related Skills on Fall Kindergarten Literacy Outcomes Controlling for Relevant Background Variables

Outcome	Predictors	Unstandardized Coefficients	
Vocabulary	**IQ**	**.33****	
mean=59.7	**Home Literacy Environment**	**1.27****	
sd=17.5	**Entrance Age**	**.99****	
	Race	**-8.19****	
	Maternal Education	**.67**	
	Gender	.21	
	Preschool Experience	-.03	R^2= .59
	Work-related Skills	.86	R^2= .59
General Knowledge	**IQ**	**.16****	
mean=15.5	**Entrance Age**	**.53****	
sd=9.3	**Home Literacy Environment**	**.48***	
	Race	**-3.29***	
	Maternal Education	.41	
	Gender	-.51	
	Preschool Experience	-.01	R^2= .47
	Work-related Skills	**.83+**	R^2= .48
Reading Recognition	**IQ**	**.10****	
mean=8.9	**Entrance Age**	**.28****	
sd=6.3	**Home Literacy Environment**	**.36***	
	Gender	-1.01	
	Maternal Education	.21	
	Preschool Experience	.02	
	Race	.52	R^2= .29
	Work-related Skills	**.82***	R^2= .31
Mathematics	**IQ**	**.14****	
mean=12.5	**Entrance Age**	**.44****	
sd=5.3	Race	-.74	
	Preschool Experience	.02	
	Home Literacy Environment	.07	
	Gender	-.28	
	Maternal Education	.05	R^2= .43
	Work-related Skills	.41	R^2= .43

*Note: Results are from OLS forced-entry regression, with WRS entered alone in the second step; each step is shown in a separate box for each outcome. Significant predictors in the final model appear in bold, and their level of significance is indicated as +p<=.05, *p<=.01, and **p<=.001. Gender is coded for female and 1 for male. Race is coded 0 for White and 1 for African American.*

Table 2

Effect of Work-related Skills on Spring Kindergarten Literacy Outcomes Controlling for Relevant Background Variables

Outcome	Predictors	Unstandardized Coefficients	
Vocabulary	**Fall K Vocabulary Score**	**.62****	
mean=71.1	**Preschool Experience**	**-.09***	
sd=17.0	**IQ**	**.11+**	
	Race	-2.81	
	Home Literacy Environment	.35	
	Maternal Education	.45	
	Gender	1.80	
	Entrance Age	.16	R^2= .73
	Fall K Work-related Skills	.98	R^2= .74
General Knowledge	**Fall K Gen. Knowledge Score**	**.66****	
mean=21.4	**IQ**	**.12+**	
sd=10.4	**Entrance Age**	**.31***	
	Home Literacy Environment	**.36+**	
	Gender	1.63+	
	Preschool Experience	-.02	
	Maternal Education	.07	
	Race	.01	R^2= .63
	Fall K Work-related Skills	-.28	R^2= .63
Reading Recognition	**Fall K Reading Rec. Score**	**.68****	
mean=16.6	**IQ**	**.07+**	
sd=8.3	Home Literacy Environment	.21	
	Entrance Age	.14	
	Preschool Experience	-.02	
	Maternal Education	.11	
	Race	.44	
	Gender	-.26	R^2= .52
	Fall K Work-related Skills	**1.13***	R^2= .54
Mathematics	**IQ**	**.17****	
mean=17.4	**Fall K Mathematics Score**	**.33****	
sd=6.8	**Entrance Age**	**.34****	
	Gender	**1.61***	
	Home Literacy Environment	**.23+**	
	Maternal Education	.21	
	Preschool Experience	-.02	
	Race	.49	R^2= .54
	Fall K Work-related Skills	**.64+**	R^2= .55

*Note: Results are from OLS forced-entry regression, with WRS entered alone in the second step; each step is shown in a separate box for each outcome. Significant predictors in the final model appear in bold, and their level of significance is indicated as +p<=.05, *p<=.01, and **p<=.001. Gender is coded for female and 1 for male. Race is coded 0 for White and 1 for African American.*

Table 8

Effect of Work-related Skills on Spring First Grade Literacy Outcomes Controlling for Relevant Background Variables

Outcome	Predictors	Unstandardized Coefficients	
Vocabulary	**Spring K Vocabulary Score**	**.58****	
mean=82.3	**Home Literacy Environment**	**.44**	
sd=15.5	IQ	.09	
	Race	-2.35	
	Entrance Age	.13	
	Maternal Education	-.02	
	Gender	.04	
	Preschool Experience	.03	R^2= .70
	Fall K Work-related Skills	.69	R^2= .70
General Knowledge	**Spring K Gen. Know. Score**	**.59****	
mean=31.1	**IQ**	**.16****	
sd=12.7	**Entrance Age**	**.37***	
	Race	**-2.99+**	
	Home Literacy Environment	.21	
	Maternal Education	.29	
	Gender	.93	
	Preschool Experience	.00	R^2= .65
	Fall K Work-related Skills	**.93+**	R^2= .65
Reading Recognition	**Spring K Reading Score**	**.69****	
mean=31.9	IQ	.08	
sd=11.3	Maternal Education	.47	
	Gender	-1.39	
	Home Literacy Environment	-.12	
	Race	-.82	
	Entrance Age	-.07	
	Preschool Experience	.02	R^2= .48
	Fall K Work-related Skills	**1.79****	R^2= .50
Mathematics	**Spring K Mathematics Score**	**.54****	
mean=25.8	**IQ**	**.20****	
sd=10.0	**Entrance Age**	**.28***	
	Race	-1.65	
	Maternal Education	.23	
	Gender	.83	
	Preschool Experience	-.02	
	Home Literacy Environment	.07	R^2= .56
	Fall K Work-related Skills	**.83+**	R^2= .57

*Note: Results are from OLS forced-entry regression, with WRS entered alone in the second step; each step is shown in a separate box for each outcome. Significant predictors in the final model appear in bold, and their level of significance is indicated as +p<=.05, *p<=.01, and **p<=.001. Gender is coded for female and 1 for male. Race is coded 0 for White and 1 for African American.*